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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,788	07/31/2001	Bulent M. Basol	042496 0259663	4835
7590	11/14/2003		[REDACTED]	[REDACTED] EXAMINER WONG, EDNA
PILLSBURY WINTHROP LLP 1600 Tysons Boulevard McLean, VA 22102			[REDACTED] ART UNIT 1753	[REDACTED] PAPER NUMBER

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/919,788	BASOL, BULENT M.
	Examiner	Art Unit
	Edna Wong	1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-79 is/are pending in the application.
- 4a) Of the above claim(s) 60-79 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-59 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 July 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>See Other</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: May 31, 2002; June 17, 2002; and December 10, 2002.

Election/Restrictions

Applicant's election without traverse of Group I, claims **1-59**, is acknowledged.

Accordingly, claims **60-79** are withdrawn from consideration as being directed to a non-elected invention.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

Figures **2a, 2b, 2c, 3 and 5** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Applicants disclose that Figs. 2a-2c illustrate cross-sectional views of a *conventional method* for depositing a conductive material on the substrate of Fig. 1; that Fig. 3 illustrates a cross sectional view of a substrate having a conductive material deposited thereon in accordance with *another conventional method*; and that Fig. 5 illustrates a *conventional plating cell* having an anode, cathode and electrolyte disposed therein (page 13, lines 8-11 and 14-15).

Specification

The disclosure is objected to because of the following informalities:

page 1, line 11, the words -- now US Patent No. 6,534,116, -- should be inserted after the word "INFLUENCE,"

page 9, line 23, the words -- now US Patent No. 6,413,388, -- should be inserted after the number "2000,".

page 11, line 3, the word "apparatus. It" should be amended to the words -- apparatus. It --.

page 16, line 23, the number "42, , " should be amended to the number -- 42, --.

page 17, line 12, the word "awaythe" should be amended to the words -- away the --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- I. Claims 1-59 are rejected under 35 U.S.C. 112, first paragraph,

because the specification, while being enabling for electroplating, does not reasonably provide enablement for electroless plating. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

Claim 1, line 12, and claim 30, line 9, recite "plating the conductive top of the workpiece".

The word "plating" is open to electroless plating. However, Applicants' specification discloses that the method disclosed is called a "mask-pulsed" plating (page 14, line 10). It appears that the pulse is an *electrical* pulse. Also, Applicants' specification discloses that the method is carried out in a plating cell that contains an anode and a cathode (page 15, lines 6-19). Thus, it appears that the claims, as presently written, are not commensurate in scope with the specification.

II. Claims **1-59** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

lines 5-6, it is unclear if the additive is composed of AB and is split in a first portion A and a second portion B or if the additive are adsorbed in first and second amounts.

Claim 8

lines 1-2, “the step of applying the external influence” lacks antecedent basis.

It is suggested that the words “the step of applying” be deleted.

line 2, “removing the mask” lacks antecedent basis.

Claim 10

lines 1-2, “the step of applying the external influence” lacks antecedent basis.

It is suggested that the words “the step of applying” be deleted.

Claim 12

lines 1-2, “the step of applying the external influence” lacks antecedent basis.

It is suggested that the words “the step of applying” be deleted.

line 2, “removing the mask” lacks antecedent basis.

Claim 13

lines 1-2, “the step of applying the external influence” lacks antecedent basis.

It is suggested that the words “the step of applying” be deleted.

Claim 15

lines 1-2, “the step of applying the external influence” lacks antecedent basis.

It is suggested that the words “the step of applying” be deleted.

Claim 18

lines 1-2, “the step of applying the external influence” lacks antecedent basis.

It is suggested that the words “the step of applying” be deleted.

line 4, it appears that “the area of the workpiece” is the same as the area of the top portion recited in claim 18, line 2. However, it is unclear if it is. See also claim 19, line 3.

Claim 19

lines 1-2, it appears that “a current pulse with a first current density” is further limiting the current pulse recited in claim 18, line 4. However, it is unclear if it is.

Claim 23

line 2, it appears that “a plating current” is the same as the plating current recited in claim 18, line 4. However, it is unclear if it is.

Claim 28

lines 1-2, "the step of applying the external influence" lacks antecedent basis.

It is suggested that the words "the step of applying" be deleted.

Claim 30

line 10, "the external influence" lacks antecedent basis.

Claim 31

line 2, it appears that the "at least one additive" is the same as that recited in claim 30, line 4. However, it is unclear if it is. If it is, then it is suggested that the word -- the -- be inserted after the word "of".

Claim 40

line 2, it appears that the "at least one additive" is the same as that recited in claim 30, line 4. However, it is unclear if it is. If it is, then it is suggested that the word -- the -- be inserted after the word "of".

Claim 50

lines 1-2, "the step of applying the external influence" lacks antecedent basis.

lines 2-3, "the external influence" lacks antecedent basis.

line 4, it appears that "the area of the workpiece" is the same as the area of the top portion recited in claim 50, line 2. However, it is unclear if it is. See also claim 51, line 3.

lines 1-2, it appears that "a current pulse with a first current density" is further limiting the current pulse recited in claim 50, line 4. However, it is unclear if it is.

Claim 55

line 2, it appears that "a plating current" is the same as the plating current recited in claim 50, line 4. However, it is unclear if it is.

Claim 59

lines 1-2, "the step of applying the external influence" lacks antecedent basis.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly

owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims **1-59** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims **1, 15-26 and 30** of U.S. Patent No. 6,534,116 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim limitation of "applying an external influence to the top portion, the external influence removing from the top portion of the workpiece a part of the first amount of the additive previously adsorbed on the top portion" is common to all the above references. It appears that Applicants have taken this limitation and have made the external influence into a movable mask in spaced relation to the top portion of the workpiece in the present claims. Thus, the claims are not patentably distinct from each other because the claims of the present invention fail to be patentably distinct from the invention claimed in the claims of the patent because the independent claims of the present invention recite limitations that are readable on, either alone or in combination with their dependent claims, and vice versa, wherein the claims of the present invention (the narrow claims) are encompassed by the claims of the patent (the broad claims). Therefore, the claims would have been obvious variants over each other.

Citations

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

JP 2001-291954 is cited to teach a via-filling method comprising the step of removing the plating accelerator stuck on the surface of a copper coating except for the inner wall surface including the bottom surface of the via hole (abstract).

Cohen (US Patent Application Publication No. 2002/0166773 A1) is cited to teach a method of enhancing electrochemical deposition (ECD) filling of narrow openings, whereby an inhibitor concentration during at least a portion of the electroplating is significantly larger at the field than inside the opening (page 2, ¶ [0016]).

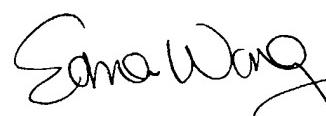
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1495.

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Edna Wong
Primary Examiner
Art Unit 1753

EW
November 10, 2003